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IN THE CLAIMS

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1. (Currently Amended) An optical head-wherein,  
comprising:

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a first laser light source having a first oscillation wavelength for reading or recording data from a recording medium and a second laser light source having a second oscillation wavelength different from ~~or into~~ the first oscillation wavelength are, said first and second laser light sources being mounted in a recess formed in a substrate, a surface of which has been partially removed;

~~laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror constituting a part of said recess, and arranged to reflect laser beams emitted from said first and second laser light sources to be outputted in a normal direction of the substrate surface or in a direction away from and normal to the substrate surface;~~

~~a first photodetector means for obtaining out-of-focus detection signals based on the laser beams which have returned after being reflected by a surface of said recording medium, a second photodetector means for obtaining a tracking error detection signal and an information reproduction signal, and a third photodetector means for monitoring the quantity of light~~

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emitted from the first or the second laser light source, are provided; and

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in said first photodetector means, first detecting means for detecting the out-of-focus detection signal based on the laser beam from the first laser light source, and second detecting means for detecting the out-of-focus detection signal based on the laser beam from the second laser light source ~~are~~, said first and second detecting means being spaced away from each other.

2. (Currently Amended) An optical head according to claim 1, ~~which is disposed within an optical information recording/reproducing apparatus in such a manner that wherein~~ the laser beams emitted from said first and second laser light sources which have returned after reflected by the surface of the recording medium are each divided and reach an upper surface of said substrate return as a first beam reflected by the surface of the recording medium for obtaining the out-of-focus detection signal, a second beam reflected by the surface of the recording medium for obtaining the tracking error detection signal and an information reproduction signal, and a third beam reflected back to the third photodetector means for monitoring the quantity of light emitted from the first or the second laser light source.

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3. (Original) An optical head according to claim 1, wherein said recording medium is any one of an optical information recording and reproducing medium, an optical information reproducing medium, a magneto-optic information recording and reproducing medium, a magneto-optic information reproducing medium, an optical information recording and reproducing disc, an optical information reproducing disc, a magneto-optic information recording and reproducing disc, and a magneto-optic information reproducing disc.

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4. (Original) An optical information recording/reproducing apparatus or an optical information reproducing apparatus, having the optical head of claim 1, wherein a laser light source having an oscillation wavelength of 660 nm is used in the case where the recording medium is a DVD medium, while a laser light source having an oscillation wavelength of 780 nm is used in the case where the recording medium is a CD medium.

5. (Currently Amended) An optical head ~~wherein~~,  
comprising:  
\_\_\_\_\_ a first laser light source having a first oscillation wavelength for reading data from a recording medium and a

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second laser light source having a second oscillation wavelength different from the first oscillation wavelength are, said first and second laser light sources being mounted in a recess formed partially in a surface of a substrate;

said first and second oscillation wavelengths being each determined in accordance with the type of said recording medium, ~~and wherein~~ said laser light sources are used selectively in accordance with the type of the recording medium and in conformity with a read wavelength;

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~~laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror constituting a part of said recess, and arranged to reflect laser beams emitted from said first and second laser light sources to be outputted in a normal direction of the substrate surface or in a direction away from and normal to the substrate surface; and~~

~~a first photodetector means for obtaining out-of-focus detection signals, a second photodetector means for obtaining a tracking error detection signal and an information reproduction signal, and a third photodetector means for monitoring the quantity of light emitted from the first or the second laser light source, are provided; and~~

wherein said first photodetector means having means for detecting the out-of-focus detection signal based on the beam

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from the first laser light source and means for detecting the out-of-focus detection signal based on the beam from the second laser light source.

6. (Currently Amended) An optical head ~~wherein,~~  
comprising:

A2 a first laser light source having a first oscillation wavelength for reading data from a recording medium and a second laser light source having a second oscillation wavelength different from the first oscillation wavelength are, said first and second laser light sources being mounted in a recess formed partially in a surface of a substrate;  
~~laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror constituting a part of said recess, and arranged to reflect laser beams emitted from said first and second laser light sources to be outputted in a normal direction of the substrate surface or in a direction away from and normal to the substrate surface; and~~

~~a first photodetector means for obtaining out-of-focus detection signals, a second photodetector means for obtaining a tracking error detection signal and an information reproduction signal, and a third photodetector means for monitoring the quantity of light emitted from the first or the~~

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second laser light source ~~are~~, said first, second, and third laser light sources being formed monolithically on said substrate; and

wherein said first photodetector means has means for detecting the out-of-focus detection signal based on the laser beam from the first laser light source and means for detecting the out-of-focus detection signal based on the laser beam from the second laser light source.

7. (Currently Amended) An optical head according to claim 6, wherein said first and second laser light sources are disposed adjacent to each other so as to permit a single optical path to be used in the optical head.

8. (Currently Amended) An optical head ~~wherein~~, comprising:

a first laser light source having a first oscillation wavelength for reading data from a recording medium and a second laser light source having a second oscillation wavelength different from the first oscillation wavelength are, said first and second laser light sources being mounted in a recess formed partially in a surface of a substrate;  
wherein said substrate and said first laser light source are optically aligned with each other on the basis of

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alignment marks affixed to the substrate and the first laser light source, respectively, and said substrate and said second laser light source are aligned with each other optically or by image processing on the basis of alignment marks affixed to the substrate and the second laser light source, respectively;

~~laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror constituting a part of said recess, and arranged to reflect laser beams emitted from said first and second laser light sources to be outputted in a normal direction of the substrate surface or in a direction away from and normal to the substrate surface; and~~

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~~a first photodetector means for obtaining out-of-focus detection signals, a second photodetector means for obtaining a tracking error detection signal and an information reproduction signal, and a third photodetector means for monitoring the quantity of light emitted from the first or the second laser light source are, said first, second, and third photodetectors being formed monolithically on the substrate; and~~

said first photodetector means having means for detecting the out-of-focus detection signal based on the laser beam from the first laser light source and means for detecting the

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out-of-focus detection signal based on the laser beam from the second laser light source.

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9. (Currently Amended) An optical head according to claim 8, wherein said second and third photodetector means have photodetection sensitivity for the laser beams of the first and second ~~oscillation~~ oscillation wavelengths.

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10. (Currently Amended) An optical head ~~wherein,~~  
comprising:

a first laser light source having a first oscillation wavelength for reading data from a recording medium and a second laser light source having a second oscillation wavelength different from the first oscillation wavelength are, said first and second laser light sources being mounted in a recess formed partially in a surface of a substrate;

said first and second oscillation wavelengths being determined in accordance with the type of said recording medium, and said first and second laser light sources being used selectively in accordance with the type of the recording medium and in conformity with a read wavelength; and

~~laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror~~  
constituting a part of said recess, and arranged to reflect



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laser beams emitted from said first and second laser light sources to be outputted in a normal direction of the substrate surface or in a direction away from and normal to the substrate surface;

wherein said first or second laser light source and said mirror, which extends from a bottom of said recess to the outside of the recess, are in a spatial arrangement relation such that a laser beam portion wider than a full width at half maximum in an intensity distribution of the laser beam emitted from the first or the second laser light source is reflected by the mirror.

11. (Currently Amended) An optical head ~~wherein,~~  
comprising:

a first laser light source having a first oscillation wavelength and a second laser light source having a second oscillation wavelength different from the first oscillation wavelength ~~are,~~ said first and second laser light sources being mounted in a recess formed partially in a surface of a substrate; and

~~laser beams emitted from said first and second laser light sources are adapted to be reflected by a mirror constituting a part of said recess, and~~ arranged to reflect laser beams emitted from said first and second laser light

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sources to be outputted ~~in a normal direction of the substrate surface or~~ in a direction away from and normal to the substrate surface; ~~and~~

wherein said first or the second laser light source and said mirror, which extends from a bottom of said recess to the outside of the recess, are in a spatial arrangement relation such that most of the laser beam emitted from the first or the second laser beam source is reflected by the mirror.

12. (Currently Amended) An optical head ~~wherein,~~ comprising:

a first laser light source having a first oscillation wavelength and a second laser light source having a second oscillation wavelength different from the first oscillation wavelength ~~are,~~ said first and second laser light sources being mounted in a recess formed partially in a surface of a substrate; and

~~laser beams emitted said first and second laser light sources are adapted to be reflected by a mirror constituting a part of said recess, and~~ arranged to reflect laser beams emitted from said first and second laser light sources to be outputted in a normal direction of the substrate surface or in a direction away from and normal to the substrate surface; and

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b' wherein said first or second laser light source and said mirror, which extends from a bottom of said recess to the outside of the recess, each have a predetermined width so that a beam portion wider than a full width at half maximum in an intensity distribution of the laser beam emitted from the first or the second laser light source is reflected by the mirror.

Claims 13-19 (Canceled)

A2 20. (Original) An optical head for recording and reproducing information to and from an optical disc corresponding to an oscillation wavelength of a semiconductor laser, comprising a light source module, a beam splitter, and an objective lens, along a single optical path, said light source module comprising a plurality of semiconductor lasers and mounted on a semiconductor substrate with photodetectors for automatic focus detection and tracking detection formed thereon monolithically, said semiconductor lasers being different in wavelength in association with the optical disc.

21. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said ~~optical-disc-carrying head having~~ an integration module, said

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integration module comprising a plurality of semiconductor lasers of different wavelengths and a semiconductor substrate with photodetectors for automatic focus detection and tracking detection formed thereon monolithically, said photodetectors having sensitivity at the corresponding wavelengths, wherein an alignment mark is affixed to one or both of said semiconductor lasers and said semiconductor substrate.

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22. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said optical head ~~carrying~~ having an integration module, said integration module comprising a plurality of semiconductor lasers of different wavelengths and a semiconductor substrate with photodetectors for automatic focus detection and tracking detection formed thereon monolithically, said photodetectors having sensitivity at the corresponding wavelengths, wherein a tilted mirror is formed in said semiconductor substrate, and an alignment mark is affixed to one or both of said semiconductor lasers and said semiconductor substrate.

23. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said optical head ~~carrying~~ having an integration module, said integration module comprising a plurality of semiconductor

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lasers of different wavelengths and a semiconductor substrate with photodetectors for automatic focus detection and tracking detection formed thereon monolithically, said photodetectors having sensitivity at the corresponding wavelengths, wherein a tilted mirror is formed in said semiconductor substrate so as to have a width which reflects a laser beam portion wider than a full width at half maximum in an intensity distribution of the laser beam emitted from any of the semiconductor lasers, and an alignment mark is affixed to one or both said semiconductor lasers and said semiconductor substrate.

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24. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said optical head ~~carrying~~ having an integration module, said integration module comprising a plurality of semiconductor lasers of different wavelengths and a semiconductor substrate with photodetectors for automatic focus detection and tracking detection formed thereon monolithically, said photodetectors having sensitivity at the ~~corresponding~~ corresponding wavelengths, wherein an amplifier for amplifying light currents from said photosensors is formed monolithically on said semiconductor substrate, a tilted mirror is formed in the semiconductor substrate, and an alignment mark is affixed to

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one or both of said semiconductor substrate or said semiconductor lasers.

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25. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said optical head ~~carrying~~ having an integration module, said integration module comprising a plurality of semiconductor lasers of different wavelengths, photodetectors for automatic focus detection and tracking detection, and a semiconductor substrate, wherein the photodetectors and a light current amplifier are formed monolithically on said semiconductor substrate, a tilted mirror is formed in the semiconductor substrate, alignment marks are affixed to said semiconductor lasers and said semiconductor substrate at respective contacting surfaces, and alignment is made by image processing with use of a transmitted or reflected ~~light of~~ infrared light.

26. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said optical head ~~carrying~~ having an integration module, said integration module comprising a plurality of semiconductor lasers of different wavelengths, photodetectors for automatic focus detection and tracking detection, and a semiconductor

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substrate, wherein the photodetectors are formed monolithically on said semiconductor substrate and a tilted mirror is formed in the substrate, alignment marks are affixed to both said semiconductor lasers and said semiconductor substrate, and a material superior in thermal conductivity is disposed in a contact portion between the semiconductor lasers and the semiconductor substrate.

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27. (Currently Amended) An optical head for recording and reproducing information to and from an optical disc, said optical head ~~carrying~~ having an integration module, said integration module comprising a plurality of semiconductor lasers of different wavelengths, photodetectors for automatic focus detection and tracking detection, and a semiconductor substrate, wherein the photodetectors are formed monolithically on said semiconductor substrate and a tilted mirror is formed in the substrate, alignment marks are affixed to both said semiconductor lasers and said semiconductor substrate, and a material having a stress relaxing effect is disposed in a contact portion between the semiconductor lasers and the semiconductor substrate.